

## CLAIMS

What is claimed is:

1. A system for aligning a wafer to a reticle, comprising:  
the reticle, including:  
a design area;  
a first alignment mark; and  
a second alignment mark which is symmetric to the first alignment mark with respect to a reticle centerpoint;  
at least one additional diagonal line intersecting at least one alignment mark utilized to facilitate a more accurate alignment of components and wires in accordance with the X initiative
2. The system of claim 1, further comprising a processor which allows a user to select and place at least one additional diagonal line to intersect at least one alignment mark.
3. The system of claim 1, the diagonal line is one of 45, 135, 225 and 315 degrees relative to first and second alignment marks, wherein an alignment mark comprises two lines which intersect and are orthogonal.
4. The system of claim 1 further comprising a memory operatively coupled to the processor to facilitate adding additional lines based on prior operations.
5. The system of claim 1, the processor determines the number of additional lines required to achieve a desired accuracy within an alignment mark.
6. A wafer alignment system employing the system of claim 1.
7. A wafer fabrication system employing the system of claim 1.

8. A system for aligning two or more wafer layers, comprising:
  - a reticle, including:
    - a design area;
    - a first overlay target; and
    - a second overlay target which is symmetric to the first overlay target with respect to a reticle centerpoint;
  - at least one additional diagonal line segment utilized to facilitate a more accurate overlay; and
  - a processor which allows a user to select and place at least one additional diagonal line segment.
9. The system of claim 8 wherein a diagonal line is a line that is at least one of 45, 135, 225 or 315 degrees relative to an alignment mark comprising two lines which intersect and are orthogonal.
10. The system of claim 8 further comprising a memory operatively coupled to the processor to facilitate adding additional lines based on prior operations.
11. The system of claim 8 wherein the processor determines the number of additional lines required achieving a desired accuracy within an overlay target.
12. A wafer overlay alignment system employing the system of claim 7.
13. A wafer fabrication system employing the system of claim 7.
14. A system that facilitates wafer surface inspection utilizing surface inspection equipment, comprising:
  - at least one CD-SEM;
  - a scanning apparatus facilitating the inspection of the surface at at least one of 0, 45, 90, 135, 180, 225, 270, 315 or 360 degrees;
  - a processor; and
  - a wafer surface that includes at least one feature.

15. A wafer inspection system employing the system of claim 14.
16. A wafer fabrication system employing the system of 14.
17. The system of claim 14 wherein the surface is comprised of a semiconductor material.
18. The system of claim 14 wherein the processor is utilized to determine a best angle or angles to inspect a surface feature.
19. The system of claim 14 further comprising a receiving element operatively coupled to the CD-SEM.
20. A method for facilitating wafer alignment comprising the steps of:
  - using a reticle, including:
    - a design area:
    - a first alignment mark; and
    - a second alignment mark which is symmetric to the first alignment mark with respect to a reticle centerpoint;
  - adding at least one additional diagonal line intersecting at least one alignment mark utilized to facilitate a more accurate alignment; and
21. The method of claim 18, further comprising selecting and placing at least one additional diagonal line to intersect at least one alignment mark utilizing a processor.
22. The method of claim 19 wherein the diagonal line comprises at least one of 0, 45, 90, 135, 180, 225, 270, 315 and 360 degrees relative to the alignment mark.

23. A method for facilitating wafer alignment, comprising the steps of:  
using a reticle, including:  
a design area;  
a first overlay target; and  
a second overlay target which is symmetric to the first overlay target  
with respect to a reticle centerpoint;  
adding at least one additional diagonal line segment utilized to facilitate a  
more accurate overlay; and  
selecting and placing at least one additional diagonal line segment utilizing a  
processor.
24. A method for facilitating surface inspection utilizing surface inspection  
equipment, comprising the steps of:  
employing at least one CD-SEM;  
locating surface features to be measured;  
scanning the inspection surface at at least one of 0, 45, 90, 135, 180, 225, 270,  
315 or 360 degrees; and  
processing information to determine a best angle or angles to inspect a surface  
feature.
25. A method of aligning a wafer and measuring overlay error, the method  
comprising:  
means for adding at least one additional diagonal line to an alignment mark to  
facilitate more accurate wafer alignment;  
means for adding at least one additional diagonal line segment to facilitate a  
more accurate overlay; and  
means for selecting and placing at least one additional diagonal line to  
intersect at least one alignment mark utilizing a processor.